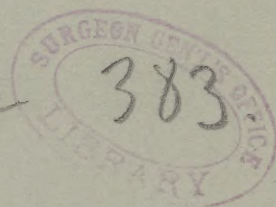


CONNER.(P.S.)

HOSPITALS FOR THE SICK:

Their Construction and Management.

Compliments BY DR. P. S. CONNER.



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HOSPITALS FOR THE SICK:

THEIR CONSTRUCTION AND MANAGEMENT.

BY DR. P. S. CONNER.

A hospital for the sick is for the cure of the sick ; and, in the consideration of every detail of construction and management, first and constant reference must be had to its influence in securing the fullest possible relief, to the greatest number, in the shortest time. Suitably located, properly built, and wisely administered, a hospital is a power for good in the relief of suffering and the lessening of disease ; and advantageous, indirectly, to all the community, through its influence upon medical practice. But, defective in place, in plan, or in work, it may become a veritable plague spot, killing its inmates and poisoning its neighborhood. As to where and how it should be built and in what way carried on, many of the present ideas are known to be, and others are believed to be, correct ones, based upon extended observations and repeated experiments ; and may with truth be regarded as the outcome of centuries of work, developed at a cost of thousands of lives and millions of money. They cannot be disregarded by Architect, by Board, or by Superintendent, without serious detriment to sick and well. Magnificent façades, monumental buildings, and spacious quadrangles with flowers and fountains are, in and of themselves, all very well, if they can be afforded ; but, if they fail to be accompanied with thoroughly ventilated, properly heated, and duly cleansed wards, cared for by competent nurses, and occupied by patients appropriately classified (and they will almost of necessity to a greater or less extent be thus unaccompanied), however attractive they may be to the æsthetic eye, to the sound judging mind they are but whited sepulchres. Simplicity in plan, thoroughness in construction, and watchfulness in management are the three things that best secure the purpose for which a hospital exists.



Where should it be located? By preference, upon an open elevated site, that the free circulation of the air currents may not be interfered with; in no near proximity to swamps, low grounds, or the openings of ravines or long narrow valleys, the miasmatic vapors or cold winds from which cannot but be injurious; far enough removed from all buildings (dwelling or other), that neither the water nor air-supply may be contaminated; and resting upon bed-rock or a soil well drained, in which the ground-water level is low. A heavy clay or made ground should never be built upon, if other site can be procured; the first because of its coldness and dampness, the second of its containing decomposing organic matter. In hot countries, sands, unless covered with vegetation, are objectionable, on account of their great power of absorbing and retaining heat, in degree from one-third to one-half more than that of ordinary arable land.

In northern latitudes, it may be necessary to provide (as by location under the lee of a hill) some protection against the stronger and colder winds. Ground-water levels and the permeability of the soil should always be ascertained before a site is definitely decided upon; and, very generally, thorough lateral and under drainage will be found advantageous, if not absolutely necessary.

Much discussion has of late been had as to whether the general hospitals in large cities should be centrally located or established in the outskirts. Ready accessibility in cases of accident, comparatively short transport of the very sick, ease in procuring supplies, and lessened demand upon the time of the attending physicians are the great reasons for the central location.

But, in a densely populated part of a city, sufficient area can seldom be secured to afford even the minimum space of an acre to each one hundred patients, unless, fortunately, a large hospital reservation was early made, or there is a park that can be utilized for the purpose. Abandoned burial-grounds are not proper sites, and should not be used. Rarely, except at great expense, can be secured the "sanitary zone" of Tollet,— "a free space on all sides of the hospital for at least twice the distance of the height of the highest surrounding buildings"; and even then these latter will probably much interfere with proper ventilation and sunning, and frequently they are large factories, with their attendant noise, smoke, and dust. Further, even if a space can be secured sufficiently large for the hospital as at first built, not often will it be possible later to make such additions as the increase of population must in a comparatively few years render desirable, if not necessary. For the welfare

of the sick,—and it is for this that the hospital exists,—a somewhat suburban location, of ample area, is altogether preferable; and the difficulties of reaching the place must be overcome by careful, improved transportation. Rapid transit, which is becoming so great a necessity in all of our large cities, will afford some relief from the extra burden imposed upon the medical staff, the imposition of which is really a very strong objection to the selection of other than a central site. If necessary, a small in-town receiving hospital can be maintained.

For a medium-sized or large hospital, no plan should at present be adopted other than the pavilion.

Extended observations in all civilized countries have shown the evils of the old-time convent-barrack plan, with its mass of buildings so often completely surrounding a central court,—evils which do not possess a single redeeming feature other than economy of space. The corridor plan, with its many immediately adjoining wards all under one roof,—each, so to speak, ventilating into every other, with windows only at the end or ends,—is but little, if any, better. So much of the hospital as is devoted to the housing of the sick should be made up of comparatively small, completely detached buildings, located so as to receive the largest possible amount of sunlight and the freest circulation of air. Though pavilions were advised a century ago by Tenon, it is but a generation since they were first used in the Lariboisière Hospital, and a quarter of a century since our rapidly extemporized immense military hospitals proved their great value, both as respects ease of administration and safety to the patients. Separated from each other by a space in width not less than twice the height of a pavilion, they should, at least in other than tropical countries, be placed in such position as to secure the largest possible amount of sunlight,—that is, running north and south or a little inclined from north-east to south-west,—being built either parallel, on one or both sides of the line of communication, or *en échelon*. Placed radially, as in the circular or wheel hospitals, much of the good effects of the plan will be lost. Three-storied pavilions should not be built; and to a two-storied building, notwithstanding its economy of space and perhaps of money, there is the very serious objection that, unless the greatest care is exercised in its construction and management, the ventilation of each ward will not be independent, and both the quantity and quality of the air-supply will be defective. The difficulty of getting patients into and out of the ward on the second floor is an additional reason in favor of one-

storied pavilions; and these latter should always be provided for surgical, infectious, and lying-in cases, to whom abundance of fresh air is of vital importance.

For convenience of administration, to lessen the liability of bed-to-bed infection, and to secure more certainly and more promptly attention to wants and wishes, there should be comparatively few patients together. Never again will there be built such enormous wards as are to be seen in some of the old continental hospitals.

Temporarily, under stress, very large rooms, if they can be well ventilated, may without special danger be occupied by many patients. In the great hall of the Mechanics' Institute in New Orleans, in 1863, I placed one hundred and ten beds; and, for a year, at least, the death-rate in that ward was not higher than, if as high as, in other parts of the hospital. But, beyond a certain and that a rather uncertain and narrow limit, aggregation means, without question, increased danger; and there is quite general agreement that the number of beds should not exceed from twenty-four to thirty, one-half to two-thirds of such number being sufficient for a surgical, obstetrical, or fever ward, especially if there are in it many cases of severe character. In a children's hospital, not more than from four to eight patients should be in a room together,—if for no other reason, to lessen the number of those who must be disturbed by the crying of one too young to exercise much, if any, self-control.

In shape, the ward has almost universally been oblong. The square has in a few instances been selected, it being claimed for wards of such form that they are more easily tended, are more cheerful, and are more uniformly ventilated, and, further, that a much greater degree of privacy can readily be secured by the patients. Whether or not such claims can be fully maintained is questionable; but, up to the present time, experience has been too limited to enable any one to speak decisively. The Johns Hopkins Hospital in Baltimore has an octagonal two-storied pavilion, which, it is hoped, will prove that the modification of the square by cutting off its corners is an improvement, and to the best interests of both patients and nurses. Quite recently, circular wards have been erected; and they are believed to furnish all the advantages of the square or octagonal buildings at less cost in proportion to the bed space, and at the same time to be more readily and perfectly ventilated, the smooth curved wall offering a minimum resistance to the air currents. The new Civil Hospital at Antwerp has eight of these round pavilions, each two stories in height. Burdon Sanderson has advised wards of this shape for small-

pox and other infectious diseases, as permitting of more rapid and complete aspiration of the foul air through a central opening.

Very generally, the ceilings of the wards have been flat ; but many of the one-storied pavilions (as was the case with the barrack hospitals erected during our late war) have been left open to the roof, thus increasing the air space and favoring free circulation. In the Tollet system, the ceiling rises in the form of the pointed arch,—and not the ceiling alone, but the side walls as well. For circular wards, a domed ceiling is, it is thought, much preferable to any other, since the very shape of such a room directly favors the establishment of ascending currents, and materially aids in securing the necessary ventilation. Sir Andrew Clarke relates that, “while inspecting the grand domed circular tomb at Delhi, in hot, calm weather, he inadvertently let fall from his card-case a small slip of tissue paper, which, to his amazement, instead of falling slowly to the floor, was steadily wafted upward to the centre of the dome.” Afterward, he made repeated experiments of the same nature in various parts of the circular domed temple at Calcutta, and always with the same result.

One of the most troublesome questions in connection with a ward is in relation to the position of the service rooms. If placed, as they generally are, at one or both ends of the long ward, they necessarily interfere more or less with ventilation, since experience has shown that the chief air currents, no matter how many windows there may be on the sides, are in the line of the major axis of the building. One end of the ward at least, therefore, should be left free. The water closets, which are always likely to be, and very generally are, sources of annoyance, and too often of positive danger, should, if possible, be detached from the pavilion, the communicating corridor being cross-ventilated. The supply of water should be abundant, and the soil-pipes properly connected with a suitable sewer ; and too great care cannot be exercised in the trapping of these pipes. In very small hospitals and in localities where but little water can be secured either from the ground or from rains, earth closets should be used. All water and gas pipes should be in plain sight,—not buried in the walls,—that leaks may be readily detected and repairs easily made.

The building should have underneath a free air space, in height not exceeding six and one-half feet, that it may be easily passed through when necessary, and yet not be readily used for service purposes. The side walls above the ground and below the ward level should be formed of a row of arches, the resulting interspaces being

left open in warm countries and in hot weather, and in colder latitudes so closed that they can readily be opened up. The floor of this basement story should always be thoroughly laid in cement, as a protection against the ground water and ground air.

Shall the building be of wood or of brick or stone? That depends altogether upon circumstances,—size of the hospital, comparative cost of the different materials, the mean and the extreme variations of the temperature, the violence of the winds, etc. For small hospitals, in places in which lumber is abundant and cheap, and the winter cold not excessive, wood may very properly be employed; but, for the larger town and city hospitals, brick is the best material, being safer, more durable, and, while permeable to air, not, like wood, subject to decomposition.

A few years ago,—partly because of the observed good results of cases treated in military establishments, but chiefly on account of the wide-spread feeling that long occupation necessarily rendered any building unfit for hospital purposes, there being generated and retained conditions inimical to early recovery, and indeed to recovery at all,—the general opinion among medical men was that temporary rather than permanent wards should be erected. As a necessary sequence, either wood or cheap brick structures were advised, sufficiently good to answer the desired purpose for ten, twelve, or fifteen years, but so inexpensive that they could, with due economy, be torn down or burnt up, and replaced by others to serve a like term of years. Permanent administration buildings and temporary wards were at that time thought to be the proper elements of a hospital. But, in the last fifteen years, much has been learned respecting the causes of the unhealthiness of old hospitals, and the means of preventing the “hospitalism” of Sir James Simpson; and to-day there are few, if any, who hold the extreme opinions on the subject of temporary buildings that were so general and seemingly so well grounded a decade or more ago. Permanent buildings properly planned and suitably located, it is now known, will be healthy or unhealthy according as they are or are not wisely administered.

The walls should be double, with an intervening air space, on the inside well plastered and painted, so that they may be easily washed or, if necessary, scraped. There should be no lathing, or only that of iron wire. All corners should be rounded off, and as little wood used as possible, and that of durable kind and well seasoned. The floors may very properly be of hard pine (oak splintering too much), laid in cement, and thoroughly oiled or shellaced. Every precaution

should be taken to render the building as nearly as possible fire-proof. The windows on the sides should be opposite each other (with not more than two beds between each pair), should come within two feet of the floor, and extend up to within one foot of the top of the side, and the upper sash be so made as to permit of its being dropped inward, that the entering air may be directed upwards. In a flat-ceiled room, the air space above the level of the tops of the windows is, as a rule, of little or no value; and, ordinarily, nothing is gained by having the ward of a height greater than twelve or fourteen feet. If, as is so desirable, the room for patients runs through to at least one end of the building, the windows at such end should be in height and width similar to those on the sides; or, better yet, the end may be thrown out into a large bay, thus increasing the light and adding much to the cheerfulness of the ward, establishing, as it were, a little solarium.

The beds (which, as has already been stated, should not exceed twenty-four to thirty in number) should each have a floor space of not less than one hundred square feet, giving, in a ward twelve feet high, twelve hundred cubic feet, the minimum which is at all permissible, unless special arrangement is made to secure an uninterrupted stream of air through the building. If the ward is to be occupied by severe surgical or fever cases or by lying-in women, the floor space should be increased at least one-half.

The furniture should consist simply of bedsteads, tables, and chairs, with one or two common-service tables and a wheeled carriage for surgical dressings. The bedsteads should be of iron, with woven wire mattresses, provided with a movable plate, wooden or metal, that can be slipped underneath the latter to increase firmness when needed. No curtains should be placed around them; for, though insuring a certain degree of privacy, they seriously interfere with the free movement of air, and serve to catch and hold those minute organisms which are the causes of the diseases that are the special scourges of hospitals. The little tables, one to each bed, should be substantial, but plain, provided with one or two drawers, preferably the former. Recently, they have been made with glass tops, which can easily be kept clean, and have the further advantage of allowing of ready inspection of the condition of the drawer below, the value of which will be apparent to every one who has had knowledge of the ordinary contents of stand-drawers in an occupied ward.

If the pavilion is two-storied, the stairway (which ought to be of iron or stone) should be so detached as to reduce to the lowest

possible degree the passage of air from one ward to the other. The corridor connecting the several pavilions on a level with the occupied floors should have its supporting walls so built as that an abundance of air and light may be afforded to the subway, which, with properly cemented floor, may, if desirable, be used in the moving of patients and supplies. In this subway, the water and gas pipes may be carried. By some, it has been contended that the passage-way from one pavilion to another should be entirely open; but the necessities of a northern climate make it very desirable that the communication between the buildings should be by a corridor, the sides of which may be either open or closed by movable slats.

The administration building, located in the centre, should be reserved entirely for the offices of the hospital and the living apartments of the superintendent and resident physicians. Its height and its character, architecturally and æsthetically considered, are to be determined by what is needed and what can be afforded. The kitchen and laundry, as also the boiler-house and gas-works (if there are the latter), should be in detached buildings, removed as far as may be practicable, and never should be so placed as to occupy opposite sides of a square, upon the other two sides of which are located the pavilions. Such an arrangement, a number of illustrations of which could readily be mentioned, destroys in large measure the pavilion character of the hospital, and assimilates the plan to the old-time quadrilateral and enclosed court. Where economy of space is absolutely necessary, the kitchen may be placed in the upper floor of the administration building, a location for every reason better than in the basement. The dead house and autopsy room should be as far off as possible, and never (as the latter at least too often is) in close proximity to and under the same roof with the operating theatre.

Every hospital, other than a small one, should have two completely detached, one-storied isolating wards (one for men and one for women), in which can be placed cases of acute infectious and contagious diseases, medical or surgical. These pavilions should be supplied with an amount of fresh air largely in excess of that furnished the ordinary wards, and had better be divided up into several single-bedded rooms, so constructed that they can not only be washed out, but burnt out. In small hospitals (and in larger ones in default of permanent buildings), very serviceable temporary wards of this character can be made with tents, which, properly floored and supplied with stoves, can be made comfortable in quite cold weather: or inexpensive wooden huts or barracks may be put up.

In large hospitals, separate buildings should be provided for the nurses; and there should be no nurses' room in direct connection with a ward. While on duty, the nurse's place is in the ward itself; and, when off duty, he or she should have a quiet, comfortable room, that rest may be secured and health maintained. Even in the smaller hospitals, a nurse should not sleep in the ward or an adjoining room.

In the last twenty-five years, especially the last ten, much attention, both in England and in this country, has been given to the subject of so-called cottage hospitals; and we may soon expect to have, in many of our smaller manufacturing towns, hospitals of from six to a dozen or twenty beds. Though an ordinary dwelling may be utilized for the purpose, and by judicious and watchful management kept healthy, still it will always be better, if an old house is taken for the administration building, to put up pavilion wards, the same care being exercised as in a large hospital to have such dry, warm, properly ventilated and sunned. Plenty of sunlight is as necessary as plenty of air, and the most recent investigations have shown that it is directly destructive to those minute organisms that are the producers and maintainers of disease. No dark hospital ever was a healthy hospital. When the water-supply is not very abundant, and proper drainage is difficult, these little hospitals should have earth closets, which, duly attended to, fulfil their purpose excellently well.

The most difficult problems in construction are those connected with heating and ventilating. If the hospital is small, the patients few, and the climate not a rigorous one, the ordinary house methods of warming and airing will prove sufficient, provided only that special attention is paid to them. But, when we come to deal with 50, 100, 300, 500 sick and wounded, in all degrees of weakness and debility, with their suppurating surfaces, their offensive discharges, their constant exhalations, and their poisoning emanations, how, properly, and yet at reasonable cost, to secure the necessary amount of fresh, warm air is by no means a simple question or one at present fully answered; though it is a fixed fact that, in northern climates, as Billings puts it, "it is impossible to have at the same time good ventilation, sufficient heating, and cheapness."

Natural ventilation — *i.e.*, by doors, windows, chimneys, and openings in the roof (larger or smaller, in or on the side of the ridge), in moderate weather and when there are but few severe cases in the ward — secures a sufficient air-supply, and is always of great value as a part of the aerating system. But in the larger hospitals, and in the winter months, especially during the nights, it will not answer the

requirements; and reliance must be placed mainly upon so-called artificial or forced ventilation,—*i.e.*, upon air driven in, or that which rushes in to supply the place of foul air drawn out by heat-developed currents. In general, the latter or aspirating method has been adopted; though, by use of the fan, a much more thorough change of the ward air can be rapidly secured. The aspiration is effected by carrying the foul-air ducts into a stack heated by either an inner furnace smoke-pipe, an open fire at the bottom, or a steam-coil. Each ward may have its separate shaft, or the ducts from all may be led into a common central one, the latter plan being the cheaper, the former the more reliable. In some hospitals, the pavilion attic has been used as an aspirating chamber, into which have been carried the foul-air ducts from the ward or wards below, the necessary heat being furnished by steam-coils, and outflow secured through ridge ventilators.

The amount of air supplied should not be less than one foot per second to each bed (3,600 feet an hour); and, to avoid perceptible currents in the room, "its movement should not be more than one and one-half feet per second anywhere, except at the point of entry, where, even if warm, it should not exceed five feet per second." Experience has shown that it is better taken in at or near the floor, behind or under the beds, as, when passed in near the ceiling, it does not readily and thoroughly commingle with the air at the lower levels of the room.

The heating problem is closely bound up with the ventilating one, indeed may be regarded as an integral part of it. In small hospitals, in places where the winter's cold is not excessive, fireplaces, either alone or together with stoves, afford sufficient warmth, and add much to the cheerfulness of the room. As aids to ventilation, no matter what system of heating is adopted, open fireplaces ought to be provided, to be used either regularly or in the spring and autumn months, when the chilliness of the mornings and evenings makes it necessary to warm the wards for a few hours at a time. If stoves are employed, care must be taken to keep them properly supplied with fresh air from without; and they may with much advantage be so jacketed as that ventilation by aspiration may be effected. Hot-air furnaces should not be used, at least in other than very small hospitals, since the amount of the heat furnished can be controlled only with some difficulty; and foul air or that loaded with smoke and dust is very likely to be sent over. As a rule, either steam or hot water will be employed, apparatuses supplying the former being cheaper in first cost and more readily repaired, but more dangerous,

requiring more constant attention, and furnishing heat of higher temperature and less easily regulated. The heating arrangements for all service rooms should be separate from that of the ward.

In the management of any hospital, small or large, there are two quite distinct departments: the one purely professional, relating to the medical and surgical care; the other executive, embracing the control of the housing, feeding, and tending of the patients. Except in the very smallest cottage or in private hospitals, the one is under the control of the medical staff, the other of the superintendent, both subject to the authority of a governing board of managers.

This board should never be composed of men appointed for party reasons, and not even in municipal hospitals should they be elected by the people at large or their representatives in the Common Council. With ordinary politicians as trustees, the house officers may be expected to be incapable or indifferent, and the management costly, wasteful, and barren of good results. The longer the term of service and the rarer the changes in the *personnel* of the board, the greater will be the familiarity of the trustees with the requirements of their positions; and, as a necessary result, the more useful will they be to the hospital.

The members of the medical staff (few or many in number according to the needs of the hospital) may be appointed annually or hold office during good behavior. If the former, it should be a fixed rule, a part at least of the unwritten law, that no change shall be made except for positive neglect of duty; since no self-respecting physician would accept a place from which he was likely to be removed at the end of a year for political reasons or personal whims. If the tenure of office is known to be a feeble one, the medical officers cannot but feel a correspondingly weak interest in the discharge of their duties. It is a very general custom to limit the term of service in the wards to periods of two, three, or four months, the several physicians or surgeons regularly alternating. There are certain advantages in this arrangement. It doubles, perhaps trebles, the number of medical men directly connected with the hospital, and in like proportion lessens the burden imposed upon each. So long as services are rendered gratuitously (as they are now everywhere in this country), although from personal, professional and charitable reasons, the best physicians (especially those engaged in teaching) are usually willing to hold hospital appointments, the demands made upon their time and services should not be too heavy.

But it is very doubtful if such rotation is for the best interests of

the patients, especially those in the surgical wards. Modifications of treatment, internal or external, will of necessity often be made, for every one has his favorite methods; and such changes cannot be expected to prove always beneficial. Again, personal interest in a case that has already been weeks or months in some one's else charge is not so deep as in one that from the very beginning has been under direct observation. Not that anything will be left undone that ought to be done, but it will not be done with the same spirit. Fewer beds and uninterrupted service will, I believe, be better for both staff and patients. But this would necessitate (very often) the appointment of an assistant staff; for it is yearly becoming more and more apparent that doctors, in order to do their best work, must and should have their annual vacations, that in the woods, on the sea, or in new cities they may find rest and recreation. Additional reason for the establishment of a junior staff exists in the desirability, already referred to, of suburban location; for, when so placed, regular daily visits should not be demanded of men in full practice.

To provide for emergencies and to relieve the staff of unnecessary attention to details, there should be appointed (in other than very small hospitals) house physicians, in number proportionate to that of the patients. Either advanced students or, better, recent graduates, they should be selected after competitive examination, and should serve either twelve or eighteen months, passing in turn from department to department of the house. It is not well that all of them should finish their hospital term at the same time. Comfortable rooms should be provided for them in the administration building, or, if it can be afforded, they should have a building of their own; and their duties should be so arranged that they may have a reasonable time for professional study.

The superintendent should be the executive officer of the house, having the supervision and control of all matters not directly connected with the medical and surgical care of the patients. Upon his knowledge, executive ability, and conscientious devotion to duty largely depends the smooth and successful working of the hospital. In such individual, a peculiar combination of talent is required, and one not always readily found. Able to control subordinates and to supervise (at least in a general way) the purchasing and issuing of supplies, he must appreciate the ward necessities in respect to cleanliness, warmth, and air, and the means of properly meeting them, and by constant watchfulness see to it that they are provided. In

too many hospitals, the chief attention of the superintendent is directed to matters of finance. Economy is right and proper, and extravagance is always an evil; but the important thing in management is not to see at how little cost per day the hospital can be run, but in what proportion and how quickly the patients can be cured, and returned to the class of producers. Very generally, a reported low rate of expense indicates but an apparent saving, since it is mainly secured by cutting down the general diet list, the result of which is a prolongation of the period of convalescence, with corresponding increase of the ultimate cost. Should the superintendent be a physician? If he is, he will undoubtedly be more likely to understand and satisfy the demands of the house in matters relating to ventilation, warming, and the dietary; but, unless his duties are very clearly defined, and he has good judgment and discretion, there is strong probability that conflicts with the medical staff will be of not infrequent occurrence. In other than large hospitals, the necessary examination of patients for admission may well be left to him, if a doctor; but under no circumstance should he have the power to discharge a patient until requested to do so by the attending member of the medical staff.

Nothing perhaps conduces more to the welfare of patients, and secures more certainly the desired results of treatment, medical or surgical, than good nurses; and one of the great difficulties in all our hospitals, until very recently, has been the getting and keeping a corps of such. As a rule, the pay has been too little to attract or retain men and women having the requisite qualifications,—intelligence, tact, readiness to obey, strength, and health; and, as a consequence, the nurses have too often been idle, neglectful, and intemperate, recruited largely from the ranks of the lazy and shiftless. There was much truth in the remark of an old officer of the army, when years ago complaint was made of the conduct of soldiers, that “it was impossible to get all the virtues of earth for eight dollars a month.” Somewhat more adequate pay, more considerate treatment, better provision for their welfare, and the establishment of training-schools have, in the last few years, given to many of our hospitals a much improved nursing force; and we may reasonably expect that there will before long be an increased and more general change for the better.

Every large hospital should have its training-school; but it is asking too much of the medical staff that they shall give the additional time and labor required for the instruction (theoretical and practical)

in such schools, a duty which may very properly be left to a junior staff and already trained head-nurses. Care should always be taken that the teaching be not of such character as really to unfit the scholars for the proper duties of their position, to create (as Hodges puts it) "an unexpected hybrid, neither servant, nurse, nor doctor."

Quite recently, in various hospitals, attention has been strongly directed to the advisability of placing female nurses in the male wards. Every one recognizes the value of the services that have been and are being rendered by members of different religious orders in the Catholic Church. The non-religious and semi-religious nursing sisterhoods that have lately sprung up have, when under proper control, done excellent work. The memory of those who tenderly cared for the sick and wounded of the English and American armies will be kept green so long as the Crimean war and the Great Rebellion are remembered. But is it well and practicable in ordinary hospitals to intrust the nursing of men to other than men? So far as experiments have been made, much advantage has been found in having a properly trained woman as head-nurse in each ward, assisted either by a female or male nurse or by convalescent patients. Wards thus attended are cleaner, more orderly, and more carefully watched; and, as a result, the recovery of patients is surer and speedier.

In conclusion, it may be said that a hospital is of necessity a complicated machine; and much wisdom is required in its preparation and its management. Faults in construction and errors in administration, the latter even more than the former, diminish its usefulness and harm the community. For every reason, they should, if possible, be avoided; and it should never be forgotten that, to secure the desired good results, sufficient money must be furnished to properly build and wisely to administer. As respects essentials, who spends saves.

